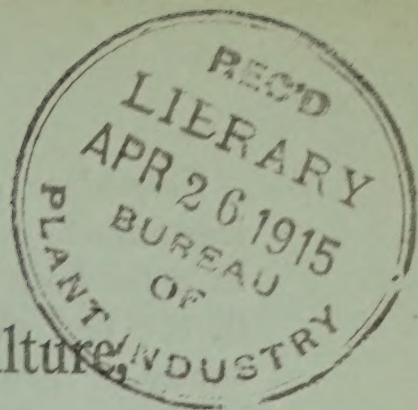


## **Historic, Archive Document**

Do not assume content reflects current  
scientific knowledge, policies, or practices.





# United States Department of Agriculture,

BUREAU OF PLANT INDUSTRY,

Forage-Crop Investigations,

WASHINGTON, D. C.

## LESPEDEZA, OR JAPAN CLOVER (*Lespedeza striata*).

Lespedeza, or Japan clover, is an annual leguminous plant which was introduced into the Gulf States some time previous to 1846. It is a native of eastern Asia. This plant, which makes its growth during warm weather only, has gradually spread since its introduction until it now occurs in most of the pastures from southern New Jersey to eastern Oklahoma and southward. It is also found along the Pacific coast. Lespedeza is a valuable addition to pastures upon poor or thin soils, since it does well under these conditions, making a growth of 4 to 10 inches. It is used as a hay crop on the fertile soils in the lower Mississippi Valley, especially in Louisiana, Mississippi, and Arkansas, where it frequently attains a height of 18 to 24 inches. Since it is a summer-growing legume it must compete with cowpeas, soy beans, velvet beans, and Florida beggarweed. Its greatest utility therefore lies in its use as a pasture plant. When introduced into a locality and established it will spread naturally, even on poor upland pastures, since part of the seed is produced so low to the ground that it escapes grazing. Yet under these conditions it is not to be considered a weed, because it makes a valuable addition to pastures and will readily yield to cultivation. Lespedeza is often confused with the hop clovers, but it may be readily distinguished from them, since lespedeza has pink flowers borne one (or possibly two or three) in a place at the base of the leaves, while the hop clovers have yellow flowers borne in heads, usually containing from 6 to 50 flowers each. The root system of lespedeza is not very extensive; yet it is estimated that the weight of the roots and stubble is about one-third that of the hay removed.

### USES.

While lespedeza will never replace such standard summer crops as cowpeas and soy beans in the South, yet in the localities where it is best adapted it must not be underestimated as a forage crop and soil renovator.

*Lespedeza as a pasture crop.*—Lespedeza is considered the best leguminous forage plant for poor or run-down pastures which has thus far been introduced into the South. Its remarkable ability lies in the fact that it will make sufficient growth on the very poorest sandy or gravelly hilly soils to carry a moderate number of live stock from May until frost. When lespedeza is once established on this type of pasture it often produces a dense, pure growth of nutritive forage throughout the summer. While it makes a sufficient growth for pasturing on this type of soil, it will make a much better growth on rich calcareous loams or clay loams. If not too closely grazed it will reseed itself, so that, when once established in a pasture, with proper care a good growth of lespedeza can be obtained for an indefinite time.

Thus far no cases of bloat have been recorded from stock pasturing on lespedeza. This is probably due to the fact that it contains considerably less water than such plants as alfalfa and the true clovers. Like many other legumes, it causes horses and mules to "slobber."

In the lower Mississippi Valley, where lespedeza makes its best growth, it may be grazed until June and still make a hay crop, or it may be cut in August and the aftermath grazed. If this aftermath is not pastured closely it will also produce sufficient seed for the next year's growth.

The best summer pastures in the South are those consisting of lespedeza and Bermuda grass. The addition of lespedeza to the Bermuda-grass pastures increases the quality of the forage much more than the quantity. This is due to the high protein content of the lespedeza.

It occasionally happens that the lespedeza seeds sprout unusually early on account of favorable weather and the plants are killed by late frosts. Such pastures may be reseeded by scattering seed over the top of the sod. Better results will be obtained if the pastures are scratched with a harrow just previous to sowing the seed.

*Lespedeza as a hay crop.*—Lespedeza is rapidly gaining favor as a hay crop on the rich, fertile soils of the lower Mississippi Valley. This is due to the fact that lespedeza hay is of fine quality, rich in protein, readily eaten by all classes of live stock, and that less difficulty is experienced in harvesting it than any other legume. Its ability to produce a crop of hay the same summer a crop of grain is obtained is also in its favor. The hay is palatable and nutritious and is not considered inferior to either timothy or alfalfa. Owing to the dense stands of lespedeza and the solid stems, the hay is very heavy. On lands which are best adapted to the growing of this plant yields of  $1\frac{1}{2}$  to  $2\frac{1}{2}$  tons per acre are common. Such land normally yields 30 to 35 bushels of oats per acre.

*Lespedeza as a soil improver.*—Since lespedeza is a legume, it has the power of taking nitrogen from the air by the aid of tubercle bacteria on the roots and depositing it in the plants. This nitrogen, together with a considerable amount of vegetable matter, is added to the soil when the plants decay, thus improving the physical condition of the soil and at the same time adding nitrogen. Where lespedeza is grown as a summer crop and bur clover or hairy vetch as a winter crop, the land should improve rapidly and show marked gains in yields after growing these legumes for several years.

*Lespedeza in rotations.*—Lespedeza yields to rotations very readily, since a crop of hay or seed may be obtained after an early-maturing crop of some other plant has been harvested. Lespedeza and redtop make a good combination where it is desired to secure two crops of hay during the summer. The redtop is cut about June 1, at which time the lespedeza is only 2 or 3 inches high. Following the redtop, the lespedeza occupies the ground until frost. To this combination bur clover may be added to produce winter pasture.

Lespedeza may also be used in rotation with oats. By the time the oats are ready to cut the lespedeza will be several inches high. The first time this rotation is used the lespedeza should be seeded at the rate of 15 pounds to the acre in February or March. Afterwards, by proper handling of the lespedeza, it will reseed itself and make a volunteer growth in the oats the following year. It is suggested for trial that bur clover be sown with the oats in the fall in this rotation and that the oats and bur clover be pastured in the late winter and early spring.

A rotation of cotton, corn, oats, and lespedeza has also been tried with success. This rotation is so calculated as to increase the yields and at the same time to improve the land. In this rotation cowpeas can be planted in the corn and the lespedeza with the oats. The lespedeza is allowed to reseed itself so as to produce a crop of lespedeza alone the fourth year of the rotation, thus providing for a soil-improving crop three out of every four years.

#### SOIL REQUIREMENTS.

Lespedeza is not limited to any particular type of soil. It will make a fairly good growth on all types of soil, although it grows much more abundantly on rich calcareous loams or clay loams. It is doubtful, however, whether it will pay to lime soils for lespedeza. Soils should be well drained, at least near the surface.

#### SEEDING.

Lespedeza should be sown at the rate of about 15 pounds of seed to the acre for a full stand the first year. If a large area is to be

seeded, only a small quantity of seed need be sown, provided the field is given several years to establish a full stand. In the southern tier of the Southern States February is the best time to seed lespedeza, although good results have been obtained by seeding as late as April. North of the southern tier of States the seeding should be done somewhat later in the spring. It is important to seed at such a time that the young plants will not be killed by frost. Where lespedeza is sown for hay it is most commonly seeded with oats as a nurse crop. Most pastures throughout the South have been seeded through natural agencies. Where this is not the case and only a limited supply of seed is to be used it is best to seed only the higher parts of the pasture. The seed produced by these plants will be carried to the other parts of the field by water, wind, and live stock. Pastures have also been reseeded by scattering manure from stock fed on ripe lespedeza hay or by permitting stock to graze alternately on lespedeza pastures and the pastures which it is desired to seed down to lespedeza.

#### INOCULATION.

In most cases it is not necessary to inoculate fields in which lespedeza is to be sown. On account of the large area covered by this plant and since there are a number of other plants belonging to the same genus growing wild in the South, the presence of inoculating bacteria can probably be accounted for. Since lespedeza seed is generally sown in the hull, these hulls act as carriers of the bacteria, and inoculation is often brought about in this way. However, in localities where the plant is being grown for the first time it is well to provide inoculation. This can be done by getting soil from a field where lespedeza grows abundantly and mixing it, pound for pound, with the lespedeza seed. The seed should be sown within a short time after it has been mixed with the soil and immediately harrowed in, since sunlight is very injurious to the inoculating germs. If soil can not be obtained, cultures of bacteria for inoculating the seed may be obtained free from the United States Department of Agriculture.

#### HARVESTING.

The date of harvesting lespedeza will depend upon whether the crop is to be used for hay or seed or for both seed and hay. The plants begin to bloom in late summer and may be cut for hay at any time from August 15 to October 15. Most of it is, however, cut during September. This is of considerable advantage to the farmer, in that the hay may be cut at his convenience. It is important to cut the hay at such a time that the plants will have an opportunity to produce seed for reseeding the soil. This can be accomplished by cutting the hay when it starts to bloom, as it will give the aftermath

time to produce seed for reseeding the soil. This may also be accomplished by cutting the hay after part of the seed has matured. Sufficient seed will shatter for a stand the following year. Another way is to leave a small strip of hay uncut at each round with the mower. After the seed on these strips is ripe it may be scattered by harrowing the field at right angles to them. Isolated plants of lespedeza have nearly prostrate spreading branches, while plants which are growing in a dense stand are perfectly upright. Isolated prostrate plants produce much more seed than plants in a dense growth. Whether or not a field will produce sufficient seed for re-seeding purposes when it is mown early can be determined by noting the number of prostrate branches in the stubble.

In good haying weather lespedeza can be cut as soon as the dew is off and raked into windrows the same day. It should stand in the windrows at least a day and then be cured in small bunches or shocks. Where lespedeza grows with its accustomed thickness to the height of 8 or 9 inches, a yield of a ton to the acre may be expected, allowing 2 inches for stubble. A growth of 12 to 14 inches will yield approximately 2 tons per acre.

#### SEED PRODUCTION.

Seed of lespedeza is mainly harvested in Louisiana and Mississippi. The cutting should be done when the seed is ripe or nearly so, but while the plants are still green. The plants should also be wet with dew, so that the seed will shatter as little as possible. A mowing machine with a bunching attachment is satisfactory for this purpose. The newly cut lespedeza is commonly put into cocks, which are of such a size that they will dry out if rained upon without being turned. When thoroughly dry the crop is ready to be thrashed. Care should be taken in handling the crop, so as to lose as little seed as possible by shattering.

The seed crop produced by the small plants on the poorer lands is often as large as that produced by the large plants on the better soils. Such a seed crop is best harvested by means of an iron pan attached behind the cutter bar of the mower, the top of the pan being covered by wires or a perforated sheet of galvanized iron to keep out the trash. Sometimes such a pan is used in cutting tall lespedeza, and in this way the best and ripest seed, which otherwise would be lost, is secured.

J. M. WESTGATE, *Agronomist.*  
H. S. COE, *Scientific Assistant,*  
*Clover Investigations.*

JANUARY 13, 1915.

